

8.0 Farmyards, buildings, maintenance

8.1. Risk assessment: farmyard, buildings and maintenance

- 17% (34) farm deaths between 2006 and 2015 were due to falls from height or collapse of buildings.
- Falls from a height are the major cause of accidents involving farm buildings. Of particular concern is falling through fragile roofs and from ladders.
- Collapsing walls or earthen drains also cause deaths.
- The National Farm Survey of Safety and Health shows that the vast majority of farm injuries take place in or close to farmyards (71% and farm buildings (19%).

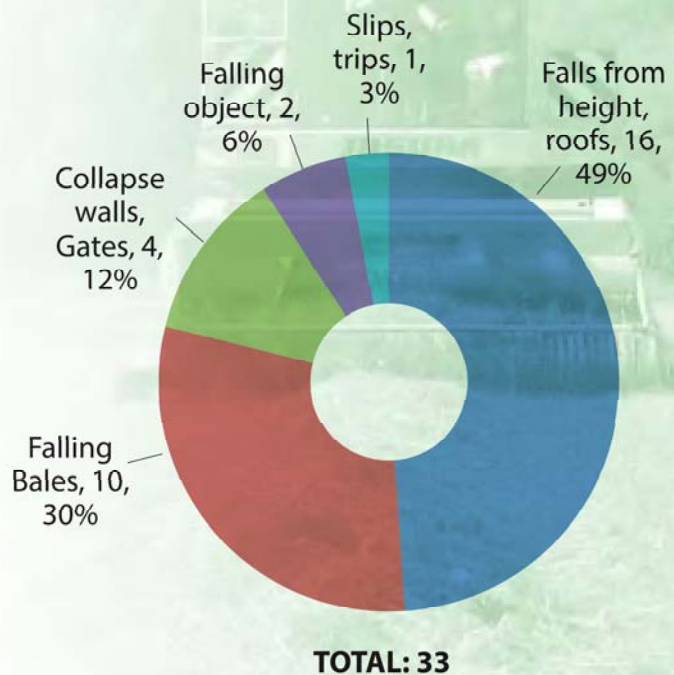


Figure 7: Fatal accidents associated with falls and collapses (2006 – 2015)

8.2. Farmyards and buildings

Pay particular attention to preventing accidents in farmyards and buildings because of the level of farm work undertaken in these areas and the high level of risk. Most farmyards and buildings have been developed over long periods and in different ways, depending on requirements and resources available at a particular time, so they may not be ideal for current activities. Assessing your farmyard and buildings for hazards, therefore, is vital to reduce the risk of injury. Many safety changes can be made cheaply and can improve the farm as a working environment. Changes to leased or rented farmyards can pose difficulties. It could be helpful to discuss changes in advance of taking on the lease with the yard owners.

8.3. Farmyard layout

A Good farmyard layout, in terms of health and safety, includes measures to control hazards associated with the following: movement within the farmyard, lighting, farmyard and building design, access to heights and safe storage and handling of slurry.

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Movement within the farmyard

- Make sure that the farmyard allows orderly movement of people, livestock, tractors & machinery and delivery/collection lorries. Facilities such as gates and fences should facilitate the orderly and safe movement of livestock between buildings.
- If possible establish one way systems for movement within the farmyard and/or minimise reversing manoeuvres which have led to many fatal and serious injuries.
- Leave adequate space between buildings to allow easy turning and movement of machinery. Identify blind spots or corners where an accident could occur, and put control measures in place such as barriers or mirrors.
- Ensure that passageways between buildings are at least 4.8 metres in width. Provide at least 12 metres of space at the front of silage pits to allow adequate room for turning large modern equipment.
- Make sure that areas used for parking vehicles and mobile equipment are level and in good condition. Rolling vehicles on even slight slopes are a major cause of farmyard accidents.
- Ensure a high level of tidiness and provide non-slip surfaces. This is essential to prevent injuries caused by slipping, tripping and falling. Cover manholes and eliminate unnecessary ledges and uneven surfaces, as these could cause a trip or fall.
- Provide properly hung gates throughout the farm to ensure easy access and use. Fitting a wheel to wide or heavy gates greatly reduces the effort and maintenance required. Having gates and styles in place greatly improves access. Avoid sheeted gates where possible as they can be blown by wind. Consider replacement with sliding or roller doors. Cattle grids should have an adjacent gate or alternative safe means of access.



A tidy farmyard cuts the risk of trips and falls

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Lighting

Good lighting in farm buildings and in the general farmyard is essential to ensure safe movement. Place adequate lighting in buildings and farmyards that ensures good visibility but minimizes glare to machine operators and to users of public roads nearby.

Consider what task lighting is needed in the yard or within buildings and sheds.

Access to heights

The protection of safety, health and welfare while working at height is covered by the Safety, Health and Welfare at Work (General Application) Regulations. 2007, Part 4.

Falls from heights accounted for the majority (47%) of farm deaths at farmyard buildings between 2006 and 2015. Take the following measures to prevent accidents related to falls from heights:

Safe use of ladders

- As far as possible avoid work at height and particularly the use of ladders, as it is high risk.,
- If you decide to use a ladder, it is best to work with someone capable of footing the ladder safely at the base.
- If you do use ladders for small-scale and short-duration maintenance work always secure the ladder and follow safe use guidelines, even for work that will last only a few minutes.
- The base of the ladder must always be placed on firm, level and secure ground. Ideally, the top of the ladder should be tied to a secure part of the building to stop it from slipping.
- The ladder needs to be 'footed' while being tied off at the top. A second person should foot it or alternatively a heavy object (for example, a sandbag) can be used to securely hold its base.



Mobile elevated work platforms should be used for maintenance of roofs

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- Ladders must be in good condition. Makeshift, home-made or damaged ladders are dangerous and should never be used.
- A ladder must be placed against the side of a building at a safe angle - about 75 degrees to the horizontal (one metre out for every four metres in height).
- Never reach out sideways from a ladder as this will destabilise the ladder and cause it to slide sideways and down.
- Always maintain 3 points of contact with the ladder.
- Never carry heavy objects while climbing a ladder. You could fall and turn over the ladder. Loads are best lifted by means of a lifting appliance or pulley rope.

Scaffolds and platforms

- Extensive work at heights may require the use of scaffolds or properly designed work platforms.
- Scaffolds should only be erected by people with appropriate training and experience. Tower scaffolds can be useful but, because they are light and potentially unstable, they need to be used with care. A free-standing tower used out of doors should not be higher than three times its base.

Mobile elevated work platforms

- Mobile elevated work platforms (MEWPs) if used properly will always provide a much safer method of access for work at height on farm buildings, than using ladders or scaffolds.
- Operators of MEWPs must have adequate training and experience. Farmers who wish to hire and use an MEWP must check the training requirements from the MEWP supplier to ensure they are competent to operate the MEWP safely.
- It is strongly advised that a competent contractor be engaged for larger roof work and other work at height on the farm. Ensure that the contractor can provide certificates of training and has adequate insurance cover for the tasks.

It is also essential that:

- The person being lifted cannot contact dangerous parts of the machine, come close to overhead power lines or be put at risk of crushing against roof or beam structures.
- Loaders with buckets, pallets or other makeshift equipment are not used as a work platform.

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Roof work

Fatal and serious accidents often happen during short duration work and when roofs are being quickly repaired.

Many deaths are particularly linked to fragile roof sheeting and skylights. Weathered skylights become very brittle and indistinguishable from other roofing material.

Both skylights and glass, when painted over, are not recognisable from above as such and are highly dangerous.



Take precautions when doing roof work

Health and safety guidance on roof work is contained in the Information Sheet on Working at Height in Agriculture and in the Code of Practice in Roofwork published by HSA.

The Department of Agriculture, Food and the Marine standard S102 sets out the Minimum standards for roof cladding and side cladding.

Take the following precautions to prevent accidents with roof work:

- Appoint a competent construction contractor for all roof work and work at height.
- Treat all roofs as fragile and consider the use of MEWP's for all roof work. If you must go onto a fragile roof, use proper roofing ladders or crawling boards. Use roofing ladders on sloping roofs.
- Erect a suitable barrier to prevent falls while carrying out extensive work on roofs.
- Never walk on Skylights.
- Skylights should be specified to minimum fragility rating Class B.
- The safety of older skylights may be improved by retro fitting a safety mesh to prevent falls. Specification S101c from the Department of Agriculture Food and the Marine sets out standards for Retrofitting Roof Clear Sheets (Rooflights) with Safety Grid.

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Accessing heights

To ensure safe stairs, working platforms and walkways:

- Stairs should not have an excessive pitch or angle. Each step should have an equal rise in height and width. The height and width should be suitably proportioned. A recognised rule of thumb is that the width plus twice the height is between 550 and 700mm.
- The sides of stairs should be protected by a wall or railing of sufficient strength, to a height of 0.9 to one metre above the pitch line. Where a railing is used, there should be at least two rails, with the lower rail positioned mid-way between the top rail and pitch line.
- To prevent falls, lofts, work platforms and walkways should have a protective barrier at the edge, of sufficient strength. Where rails are used, the top rail should be about one metre in height, with the lower rail located mid-way between the top rail and the platform. Where necessary, edge protection (a toe plate 0.15 metres high) should be provided to prevent items such as tools from falling over the edge.
- Overground slurry tanks and grain or meal bins should have a secure working platform with protective rails and a safe means of access, such as a caged ladder.
- Surfaces of stairs and walkways should be firmly fixed and should not become slippery while in use.
- Sighting rails should be installed on silage-pit walls. The purpose of these is to indicate the location of the walls to the machine operator loading the silage when the silage is above the walls. They are not intended to prevent a machine overturning. In addition, sighting rails provide protection against a person falling.

8.4 Farm building design

When planning the layout and fixtures of any new building, or modifying existing buildings, check the requirements related to safety and health.

The Farm Building and Structures Specifications (S101 and S123), issued by the Department of Agriculture, Food and the Marine, give authoritative guidance on safety and health features of buildings and facilities. These specifications are mandatory for obtaining grant aid and should be followed even if grant-aid is not being sought.

The Department of Agriculture, Food and the Marine permits grant-aiding of a wide range of safety- and health-related modifications to buildings and facilities on a farm. Thus, when preparing a grant application, consider other safety- and health-related improvements to farm buildings and facilities that could be included in the application.

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To maximise safety in relation to buildings:

- Ensure that livestock have adequate floor space. This allows easy movement of stock and the farmer when herding is taking place,
- Make sure that ventilation is adequate. Use sliding or roller doors where doors need to be more than 1.2 metres wide.
- Provide smaller personal-access doors.
- Ensure that gable-end walls are adequately tied into stanchions and have intermediate support. This reduces the risk of collapse in storms or if they are struck by a loader or vehicle.
- Provide adequate headroom.
- Ensure that there is ample natural light provided in the building. This will enable greater visibility for both operators and livestock.
- Provide adequate artificial lighting for all farm buildings.
- Provide good quality penning in animal housing, with suitable personnel gates or slip throughs to get in and out of pens.
- Ensure buildings are constructed to a good standard as set out in the Department of Agriculture, Food and the Marine specifications.

8.5 Fire

Fire on a farm can threaten life and cause serious injury. Plan to prevent fires, but prepare an emergency response. Consider the following fire-prevention measures:

- **Isolation:** Hay, straw and other flammable materials should be stored well away from a dwelling house and buildings housing stock. A minimum distance of 18 metres is recommended. Keep hay and straw storage in livestock buildings to a minimum. Store fuels and agrochemicals securely away from other combustible materials.
- **Fire Containment:** Materials such as solid concrete, solid concrete blocks, fibre cement sheeting and solid wood all have high fire-resistant qualities. Sub-dividing buildings into compartments can stop the spread of fire. However, the fire resistance of walls and roofs depends on their condition; even a small opening can completely remove the fire protection. Steel, in contrast, buckles and melts at about 500 degrees Centigrade, so keep combustible materials away from structural steel components of buildings.
- **Maintenance:** Good electrical and machinery maintenance reduces the risk of farm fires.

Electrical installations: Faulty electrical and faulty lighting installations are a major cause of farm fires. For instance, contact between dust or fodder and sub-standard electrical components or filament bulbs lead to many farm fires. Ensuring that electrical installations are done to ETCI (Electro Technical Council

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of Ireland) standards means they are dustproof and waterproof. Make sure that the electrical system is checked regularly by a competent electrician.

Fires on tractors, combines and machinery can be caused by loose electrical connections, sparks from engine exhausts, dust build-up on an engine and atomised spray leaking onto hot surfaces within the engine. Regular maintenance minimises the risk of fire and makes equipment more efficient. Tractors, combines and machinery should always be stored well away from combustible materials, such as hay or straw, to minimise possible loss and injury.

- **Evacuation:** Examine your farm for potential fire traps. Ensure that there is an adequate means of escape from all work areas. In the event of a fire, once a building has been evacuated, make sure that everyone stays out. Farm fires can produce highly toxic fumes, including hydrogen cyanide.
- **Fire extinguishers:** A fire extinguisher should only be used where there is no danger to the user and a clear escape route is available. While fire extinguishers have limitations, if they are used quickly and efficiently when a fire starts they can prevent a major blaze. Professional advice should be sought on the correct type of extinguisher for a particular use.
- **Emergency services:** Know and provide your Eircode which will assist the emergency services. When calling the fire service, give clear instructions as to how to get to the fire location. Farm gateways should be at least three metres wide to allow the fire brigade to pass. Typically, a fire brigade has 2,000 litres of water aboard, so a farm supply of water is often necessary to fight a fire.



Fire Safety

8.6 Construction Regulations

The Safety, Health and Welfare at Work Act 2005 and the Safety, Health and Welfare at Work (Construction) Regulations 2013, place extensive duties on farmers who commission or procure the carrying out of construction and maintenance of buildings. Farmers who undertake construction work on their farms will have the duties of Client under these regulations. Farmers should also take into account other roles which may apply to them in relation to construction work, that is, Project Supervisors and Contractor. Every farmer should be aware of their legal duties under these regulations before any construction work is planned. Further information on the regulations can be obtained from the Health and Safety Authority.

You (Farmer/client) must appoint in writing a project supervisors if:

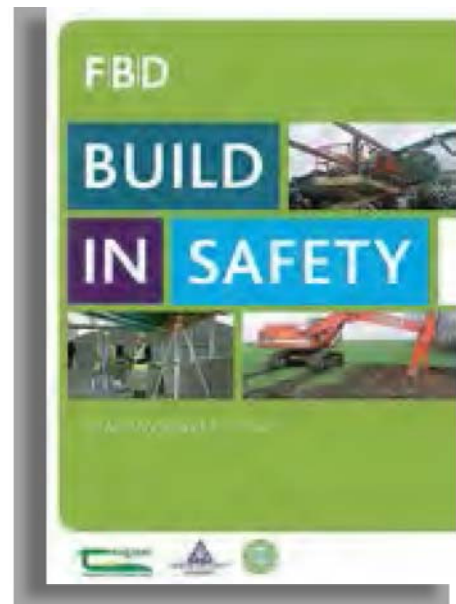
- there is more than one contractor involved in the work, or
- there is a particular risk (see below), or
- the work is going to last more than 30 days or more than 500 person days.

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What is a Particular Risk?

A Particular Risk includes:

- works that put a person at risk of falling from a height where the risk is aggravated by other factors for example, roofwork where access is restricted,
- work that involves the risk of burial under an earth fall where the risk is aggravated by other factors, for example, deep excavations in poor soil conditions,
- works near high voltage power lines, for example, building a structure on a site which has existing power lines crossing the site,
- works exposing a person to the risk of drowning, for example, construction of wall beside or near a pond or river,
- work involving the setting up or taking down of heavy parts, for example, installation of precast floors or assembly of steel beams, or
- work involving asbestos.



The list above is not exhaustive; projects may have particular risks which are not listed above. If you need further advice on what is a particular risk talk to your designer or contractor. They are competent and will be able to advise on what is or is not a particular risk for your project. Your Designer and Contractor are obliged by the regulations to inform you if the project you are engaged in requires Project Supervisors (that is, if there is a particular risk, more than one contractor or if it is scheduled to last greater than 30 days).

8.7 Building demolition

Demolition work needs careful planning and preparation. It is considered to be construction work and should only be undertaken by competent contractors.

When buildings are in a poor state of repair, they may need to be made safe with temporary supports before demolition can proceed.

In demolition, the main risks include working at height, collapsing structures and falling debris. Particular care should be taken with block walls, as these often lack structural strength and may collapse when subjected to force.

Specific regulations apply to dealing with any material containing asbestos. Asbestos, or suspected asbestos, should never be broken up, damaged, removed or handled without expert guidance. Information on the regulations is available from the Health and Safety Authority.